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First Named Inventor	Jen Jensen
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Examiner Name	R. W. Frejd
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	DARBY & DARBY P.C. Walt Thomas Zielinski - 18,902
Signature	
Date	August 11, 2004



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Docket No.: 05986/000H648-US0
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Jen JENSEN

Application No.: 09/732,322

Art Unit: 2128

Filed: December 7, 2000

Examiner: R. W. Frey

For: METHODS FOR OPTIMIZING MAGNETIC
RESONANCE SYSTEMS

AUG 13 2004

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MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action dated 6/21/04, reconsideration and withdrawal of the objection based on Patent Rules, §1.96, are respectfully solicited in view of the following remarks.
§1.96 reads as follows:

"§1.96 Submission of computer program listings.

(a) *General.* Descriptions of the operation and general content of computer program listings should appear in the description portion of the specification. A computer program listing for the purpose of this section is defined as a printout that lists in appropriate sequence the instructions, routines, and other contents of a program for a computer. The program listing maybe either in machine or machine-independent (object or source)language which will cause a computer to perform a desired procedure or task such as solve a problem, regulate the flow of work in a

computer, or control or monitor events. Computer program listings may be submitted in patent applications as set forth in paragraphs (b)and (c)of this section.

(b)*Material which will be printed in the patent* If the computer program listing is contained in 300 lines or fewer, with each line of 72 characters or fewer, it may be submitted either as drawings or as part of the specification...

(ii)Any listing having more than 60 lines of code that is submitted as part of the specification must be positioned at the end of the description but before the claims...

(c)*As an appendix which will not be printed :*

Any computer program listing may, and any computer program listing having over 300 lines (up to 72 characters per line) must be submitted on a compact disc in compliance with §1.52(e). A compact disc containing such a computer program listing is to be referred to as a "computer program listing appendix. "The computer program listing appendix " will not be part of the printed patent. The specification must include a reference to the "computer program listing appendix " at the location indicated in § 1..77(b)(4)." (emphasis added)

A careful reading of §1.96 makes clear that it applies to COMPUTER PROGRAM LISTINGS, defined as:

"A computer program listing for the purpose of this section is defined as a printout that lists in appropriate sequence the instructions, routines, and other contents of a program for a computer. The program listing maybe either in machine or machine-independent (object or source)language which will cause a computer to perform a desired procedure or task such as solve a problem, regulate the flow of work in a computer, or control or monitor events."

Appendices A-C annexed to the instant specification are NOT a computer program listing, because:

a. it is not in machine or machine-independent (object or source)language;

b. it is not capable of causing a computer to perform a desired procedure or task such as solve a problem, regulate the flow of work in a computer, or control or monitor events. Before the steps of the methods described in this application can be used to operate a computer, they must be translated into object code that a computer will respond to, or into a source code using a language appropriate for the computer hardware that the person of ordinary skill in the art will use to carry out the procedure of the invention. What the present application discloses, essentially, are method steps that a person of ordinary skill in the art will be able without the exercise of invention to implement by means of a computer using the ordinary skills of a programmer learned in this art to solve the equations listed by the techniques described. The sequence of steps and the disclosure of the equations is the applicant's contribution to this art, and these have been fully disclosed.

The Examiner's attention is also directed to MPEP, 608.05, from which it is clear that §1.96 is directed to situations in which computer code listings are provided. Computer code in object code format is impossible for a human person to understand. Computer code even if in source format is gibberish unless the reader is thoroughly familiar with the computer language used, which may not be common. Thus the average reader trying to understand the invention disclosed does not need to and will not ordinarily peruse the computer code to understand the invention if otherwise properly disclosed and explained in the specification.

In contrast, in the present case, the equations and the steps of the solution are the invention and are in the English language completely understandable by a mathematician familiar with this art, as evidenced by the discussion in the introduction of this application.

In connection with MPEP, 608.05, it is further pointed out that Appendix A is only 6 pages long; Appendix B is only 1 page long; and Appendix C is only 3 pages long; so whether considered individually or cumulatively, the number of pages does not amount to 11 or more. This is another reason why §1.96 should not be applied to the appendices in this application.

For these reasons, it is respectfully requested that the Examiner reconsider and withdraw his objection to the appendices, and it is submitted that they are properly part of the applicant's disclosure and must be printed when a patent is granted.

Reconsideration and withdrawal of the rejection based on 35 USC §102 are respectfully solicited in view of the following remarks.

Claim 1 defines an invention involving a method for designing an electromagnetic coil arrangement for generating a uniform magnetic field, a common use of which is for MRI imaging for medical purposes. The result of carrying out the method steps described is first to determine an ideal current density J(r, z) for the electromagnetic coil arrangement. In the following step, the latter is used to obtain the number of coils and the shape of the electromagnetic coil arrangement to determine its geometry.

In contrast, the cited Jensen paper is directed to an optimization scheme for permanent magnet structures. Permanent magnetic structures, even if used in MRI scanners, also can produce a uniform field. But no electromagnetic coils are used for that purpose if one chooses the permanent magnet approach. The purpose of substituting permanent magnets for electromagnetic coils is to avoid the use of the latter and their often requirement for super cooling for superconductivity, which has no relevance to permanent magnet materials.

The lack of relevance of the optimization scheme of the Jensen paper to that of the present application is that the end result of its permanent magnet optimization scheme is the geometry of the magnetic material taking into account its permanent magnetic properties, such as remanence. The electromagnetic coils that are used to implement the uniform field generator of the present application have no remanence as such. Nor, when viewed from the reverse direction, does the permanent magnet structure resulting from the optimization scheme of the Jensen paper have a current density, or coils, or a coil shape as indicated in the present claims.

The Examiner will also note that the Jensen paper was referenced in the instant specification on page 10 at [6] and its non-applicability to the present invention made clear.

In sum, the cited Jensen paper has no relevance to claim 1 of this application.

What was stated above with respect to claim 1, applies with even greater force to the other independent claims 4 and 7.

For the foregoing reasons, it is submitted that claim 1-14 are clearly not met by nor rendered obvious in view of the cited Jensen paper or any of the other references of record.

It is therefore respectfully requested that the Examiner reconsider and withdraw the rejection based on §102 and pass this case to issue.

Dated: August 11, 2004

Respectfully submitted,

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Application No. (if known): 09/732,322

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